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Environmental Education for a Sustainable Future

A Discussion Paper Prepared for the Alberta
Conservation Strategy Project

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Environmental Education for a Sustainable Future

Prepared by
Environmental Education Advisory Committee
to the Environment Council of Alberta

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FOREWORD

In late 1985, the Public Advisory Committees to the Environment Council of Alberta began working toward a draft conservation strategy for Alberta. The Public Advisory Committees (PACs), comprising representatives of some 120 non-government organizations, are in many ways an ideal organization for developing a strategy that should touch the lives of all Albertans. The PACs bring together many diverse viewpoints, we are non-partisan, and we have members from across the province. Since the early days of the project, we have welcomed non-PAC participants, and have been delighted to receive the contributions of civil servants, industry spokespeople, academics, and the general public.

We have made progress since 1985: the *Prospectus for an Alberta Conservation Strategy* has been published and many meetings and workshops have been held. The principle of a conservation strategy increasingly has been endorsed by Albertans, and Alberta has been recognized across Canada as a leader in conservation strategy development. There have been important related events. For example, in September of 1987, every environment minister in Canada endorsed the final report of the National Task Force on Environment and Economy, which recommended that conservation strategies be in place in every province and territory by 1992. This same report was endorsed by the First Ministers at their November, 1987 meeting.

We will have a conservation strategy for Alberta, we hope by 1990. Our work continues in the expectation that all those who are interested will have a chance to contribute to the project, through public hearings or some other public participation process.

Since the publication of the *Prospectus*, the PACs have concentrated on preparing sectoral discussion papers. The Conservation Strategy Steering Committee determined early on to produce background papers on relevant sectors, such as agriculture, fish and wildlife, tourism, oil and gas, and others. These discussion papers look at the issues within each sector, but, more importantly, they investigate the interaction of each sector with the others. Their preparation has involved consulting with a wide range of interest groups — a conservation strategy principle in action — which has proven fruitful in developing ideas about the ultimate conservation strategy. These discussion papers will be used as background information for drafting a conservation strategy document and, perhaps, in the future, in public hearings on the draft conservation strategy. This report is one in the series of discussion papers.

Because there are as many opinions on our best future direction as there are Albertans, we welcome comments. The conservation strategy will be only as good as the work that goes into preparing it. Please address any comments on this discussion paper or others in the series to the Environment Council of Alberta at the address given on the page opposite. I would also encourage you to make your opinions known at public hearings or other events as they are held. Let's treat Alberta as if we plan to stay!

Joan Snyder

Joan Snyder
Chairperson
Conservation Strategy Steering Committee
Public Advisory Committees to the Environment Council of Alberta

ABOUT THIS DISCUSSION PAPER

This paper briefly examines the role of environmental education in helping society reach the goal of sustainable resource use. The term "education" is used in its broadest possible sense to include both the formal and informal systems of assisting individuals to acquire knowledge and skills throughout their lives. The paper identifies a number of important environmental education issues in Alberta and suggests some tools for dealing with these issues. It concludes by offering recommendations aimed at educators, legislators, administrators, and ordinary citizens in all walks of life. There are three appendices to the paper, which provide more information on the World and Alberta Conservation Strategies, historical background of environmental education, and environmental education contacts in Alberta.

ACKNOWLEDGEMENTS

The Environmental Education Advisory Committee is pleased to offer this document to the Alberta public for their discussion and deliberation. We hope it will stimulate teachers and learners of all ages to think about the significance of environmental education and its role in achieving sustainable resource use.

Committee members have been involved in the Conservation Strategy project in various ways. Dan Stoker and John Godfrey were our initial representatives on the Steering Committee, and their early guidance is gratefully acknowledged. The excellent work of A.A. (Bert) Einsiedel, Jr. and David A.E. Spalding in editing this document is much appreciated. Portions of the paper were prepared by the following committee members: Eric Bailey; Bill Batycky; Albert Einsiedel, Jr.; Jim Martin; Dan Merrills; Rick Mrazek; Wallie Samiroden; Ian Waugh; and Brent Wylie. Other contributors to discussions of early drafts included: Sue Fast, Joy Finlay, Maggie Haag, Mike Kelly, Archie Landals, Susan Morrow, Ken Nelson, Brian Ogston, Beth Russell, Kim Sanderson, and Ron Sweet. We would also like to thank others at the Environment Council who provided valuable assistance in preparing the manuscript and distributing the paper.

August 1989

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Prologue

A Dinner Table Conversation

"Why are you all of a sudden so interested in recycling?"

Susan shrugged in response, but Mrs. Phillips was curious. For some reason, 15-year-old Susan wanted to talk about what ought to be done with garbage and waste, a dinner table topic far from typical for a Phillips family Friday night. And now Susan wanted to know what her parents thought about recycling.

"Do you have to do an essay?" asked her father, an insurance adjuster.

"Noooo!" she protested. "I just want to know."

In fact, Susan was well on her way to making up her own mind about the importance of recycling, and now she wanted to compare her new attitude on this matter with that of her parents, whose opinions she respected. But tonight she was drawing a blank, and was surprised to discover her parents didn't really have an opinion.

"What's r'cycling?" demanded little brother Mike, who at age six still felt in awe of his big sister, and always wanted to be on her side.

Father paused. "You can hardly say it," he smiled, trying to think of an explanation a six-year-old could understand.

"Recycling, recycling," Mike spluttered, indignant at not being taken seriously. Susan was serious, and so was he. "I wanna know, too!" he insisted.

"I guess recycling is good," mused Mrs. Phillips, a nurse at a local clinic. "I remember Grandma and Grandpa did a lot of it during the war years."

"What did they do?" Susan asked, interested.

"I don't remember, really," said her mother. "But they still talk about it. Maybe you should ask them."

"Okay, Mom, I will," said Susan. "But why did it stop? If they did it then, why don't we still do it now?"

"Some people do, but not as many as before," her mother replied.

"I don't really know much about it," Mr. Phillips admitted, "but I know it involves collecting used materials like metal and glass and paper, then using it all over again to make new things instead of just throwing it away."

"Who collects it?" Susan wanted to know.

"Didn't the city start some recycling program recently?" Mrs. Phillips asked her husband. "I saw something on TV awhile back."

"I think they call it the blue box program," Mr. Phillips said, tugging on his moustache the way he did when he was trying to remember something. "I've seen blue plastic boxes in a few of the neighborhoods on my way to work."

"It just seems wrong to throw paper and other stuff away if it can be reused," said Susan, "and think of the trees we could save."

"That's right," her father agreed. "But it's not very convenient to save all that stuff until it can be collected."

"Teacher's got a recycle box by his desk at school," offered Mike. "I put my worksheets in it when I get through with 'em."

"On TV they showed how you can use grass clippings, peelings, and kitchen waste instead of dumping them," Susan recalled. "It's called composting."

"Yes," said Mr. Phillips. "And some industries recycle their waste products and chemicals. I saw that in a report at the office. They can save money doing that."

"Our school band raised money last year collecting bottles and cans," Susan volunteered.

"They took them all to a bottle depot and made a bundle."

"Come to think of it, a man comes by to collect all our used computer printout paper from the office," Mr. Phillips said. "They say it gets made into new paper, but I don't know where it goes."

"Our clinic probably recycles some things, too," said Mrs. Phillips. "But most things are contaminated, and the law says we have to burn or dump our garbage in a special way."

"So, what do you think about recycling?" Susan asked them again. "I bet a lot of the things we throw out in the garbage could be reused or recycled. In social studies right now, Mrs. Thorne says magazines, cardboard, all the cans and glass, and even old junk like tires and stuff can be used to make new things."

Her parents smiled at each other. "I thought school was behind this discussion somewhere," laughed Mrs. Phillips.

"Mrs. Thorne was just trying to answer our questions about what we could do for the environment," Susan bristled. "A lot of us kids worry about the ozone layer, and tropical rain forests, and the greenhouse effect. Mrs. Thorne says recycling could help us protect the environment. So I wanted to know what you think."

"Mrs. Thorne is probably right," said her father. "In fact, she makes a lot of sense. When we recycle paper, we don't need to cut so many trees."

"My friend Katie Osborne says they have a blue box, and they put it out every week on the curb with their other garbage," Susan said. "They put newspapers, and bottles and other stuff in it. They have to rinse out the cans and glass jars first, but Katie says it's not a big deal. They store the stuff right in the box until it's picked up on Tuesdays."

"Who does all that work?" her father wanted to know.

"The whole family helps," Susan said.

"If we had a blue box, would you kids help pick up the papers and rinse out cans and jars?" asked her mother.

"Sure!" shouted Mike.

"Yes, we would," laughed Susan.

Mr. Phillips turned to Susan. "Why don't you find out from the Mayor's office if the City plans to expand the blue box program to our neighborhood?" She nodded. "Then, if you kids are interested," he continued, "we ought to look into recycling. We should try to do our part, too. It might even get me to clean out the basement and the garage, and we can do something about all the magazines we have been accumulating over the years."

"And don't the Osbornes have a compost bin in their backyard, too?" asked Mrs. Phillips. "I'll bet most of their scraps and leaves go into it. We could do that too." She made a mental note to see if the public library had any books on recycling or composting, from which the family could get more information. She realized that this discussion could be the start of an important activity the family could do and learn from at the same time.

Later that evening, Mr. and Mrs. Phillips admitted to each other their surprise, and their pride, in their children's concern about making a contribution to improving the world's situation. And they realized something — that their own attitudes and actions would be important influences on the direction and extent of their children's interest in this undertaking.

As she considered the evening, Mrs. Phillips suddenly awakened to another fact about her youngsters. "They're growing up," she thought, "and a lot faster than I did at their ages."

"I guess it's the times we live in," she said aloud.

"Yes, I guess so," agreed her husband. "But, it's going to be their world, so the sooner they and the other children start taking a hand in things, the better it will be for all of them."

Chapter One

Environmental Education Defined

What we heard at the Phillips family dinner table is environmental education in action. Broadly defined, environmental education enables thinking people to acquire and share practical information, support each other's efforts, and promote an ethic that will guide our search for sustainable solutions.

Environmental education is that branch of education which seeks to develop a population that is aware of, and interested in the environment and its associated issues, and which has the knowledge, skills, attitudes, motivation, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

As outlined in the Belgrade Charter (1975), it includes studies, investigations, and activities that focus on:

- human interdependency with other life
- the responsible use, conservation and maintenance of [a healthy] environment
- the acquisition of skills, concepts, information and attitudes necessary for functioning in the environment
- an aesthetic appreciation of the environment.

The terms "environmental education" and "outdoor education," though fundamentally quite different, have been considered to be synonymous by many in Alberta over the years. Outdoor education differs in that it primarily uses out-of-class experiences as the foundation for learning.

The term "conservation education" also may be used, especially when the ethics of environmental stewardship are being discussed. However, in keeping with current general use and understanding, we have used the term "environmental education" throughout this paper.

Environmental Education Systems in Alberta

Environmental education is part of the formal education system, which is the responsibility of the Province of Alberta (Departments of Education and Advanced Education), individual school boards, and post-secondary institutions including universities, colleges, and technical institutes. The primary audience for the formal system is the school-age population, although growing numbers of mature students are registering in post-secondary institutions throughout Alberta. The Department of Education, through its curriculum, is the primary co-ordinator, and is supported by school boards through Superintendents of appropriate subjects. Funding is supplied by the Province and local authorities.

A large amount of environmental education also takes place in the informal system, a largely unco-ordinated network of parks, museums, media, and organizations that have some involvement with environment and education topics, and serve the public at large. This system includes a variety of programs offered by such agencies as Athabasca University, extension departments of other universities and colleges, the ACCESS network, and, to a lesser extent, other radio and television stations, the major museums, parks systems and programs, citizens' groups (local, provincial, and national), and publishers. These programs are supported to a greater or lesser extent by many agencies and departments of the provincial and federal governments, including Alberta Agriculture, Culture and Multiculturalism, Energy, Environment, Recreation and Parks, the Environment Council of Alberta, the Canadian Wildlife Service, the national museums, and Parks Canada. There is no formal co-ordination, although networks such as Friends of Environmental Education Society of Alberta (FEESA), the Environment Council's own Environmental Education Advisory Committee, and the Society of Educational Resources Group (SERG) in Calgary provide some links. FEESA in particular has attempted to bring needs and resources together, and these groups are generally seen as playing a facilitative role. Alberta Government agencies have attempted to co-ordinate their efforts through a Joint Committee on Environmental Education.

Those interested in a discussion of some trends in the evolution of Alberta's formal environmental education programs are referred to Appendix A. Appendix B provides a list of organizations involved in environmental education.

Chapter Two

Environmental Education in Practice

A Window of Opportunity

How different is the hypothetical Phillips family from our own? How often have our family members, co-workers, neighbors, and friends expressed an opinion or posed a question about an environmental problem of which we have barely a modicum of knowledge, let alone an opinion or a commitment to action?

Think about the following situations and questions:

— Your municipality's landfill site is nearly full and the community is being encouraged to reduce waste and implement recycling programs. Your workplace, which produces a lot of reusable paper, is considering a paper recycling program and you've been asked to help research the costs and benefits of such a program and set up a plan to get it started. Do you know where to begin and what to do?

— You and your children are avid sport fishermen. During an outing, you see a sign warning that the fish in one of your favorite streams may be contaminated with mercury and other heavy metals; you are advised not to eat any of the fish you catch. What is causing this problem? What can you do about it?

— A ski resort wants to expand its facilities in a nearby national park, but is facing opposition. Your family enjoys skiing, but you don't want to see the park damaged, either. How can you find out more about this issue? How do you determine who's right? Do you believe that you, as a park user and taxpayer, can influence the government's or the developer's decision?

— Your church organization wants to assist a small village in a developing country by sending some money to manufacture wood-burning stoves and water pumps. Do you think your church should support this particular project?

— Your children are crazy about eating hamburgers at the local fast food outlet. You learn from a TV program that the meat used by the chain comes from Brazil, where ranchers are able to raise cheaper beef in what used to be tropical rainforests. The program featured a scientist who says that the forests are rapidly disappearing, causing the extinction of thousands of species and possibly contributing to global climate change. How do you learn more about this "hamburger connection" and what should you do about it?

— Words like "ozone," "acid rain," "CFCs," "PCBs," "greenhouse effect" and "biodegradable" are becoming household terms. Do you know enough about these things?

Just like our hypothetical Phillips family, many of us have become aware of problems that could directly or indirectly affect us. We have the opportunity to assess the issues and to consider solutions, and make some changes in the way we live. Opinion polls consistently show that most Canadians are concerned about the quality of their environment and how pollution affects their health; many are willing to pay more to ensure a healthier environment. But despite our freedom to change our lifestyles if we want to, often we do not know what to do, how to do it, and what might happen if not enough of us do our part in addressing these problems.

Our lack of action could have several different causes:

- many of us are apathetic, not motivated enough; these kinds of problems don't interest us.
- we believe that the government and experts are taking care of the problems and that we ordinary citizens, who know very little about the issues, cannot contribute much anyway.
- we are not as well informed as we could be about environmental problems and what we can do about them.

While environmental education traditionally addresses the latter, it can also be effective in remedying the first two causes.

The overall level of environmental awareness in Canada has improved in recent years, but we still have a lot of work to do. And even if our awareness levels are raised, is it enough to be merely well-informed, to know the current buzz words and theories? Awareness is necessary but not sufficient if many of today's concerns are to be successfully addressed. Recent polls indicate that many Canadians are anxious about the lack of action on the part of government and people in their communities. Many of us want to know the facts. We are confused when experts cannot agree and frustrated when we see nothing being done, even when there is agreement that something is amiss. And, beyond facts, we want to know what practical things we can do to help solve these problems.

This state of affairs is fertile ground for the growth of environmental education. If we do not take advantage of this window of opportunity, environmental degradation may close it permanently, as we are forced instead to grapple with ever more life-threatening problems, of mass starvation, for example.

Fortunately, more and more people all over the world are getting fed up and are not going to take it any more. Growing numbers of concerned citizens, government officials, business people, educators, scientists, and community leaders are working hard to find effective answers and are dedicating their time and energy to implement practical solutions. As a result, we are getting closer to the solutions we so desperately need.

In response to the increasing urgency of many of these problems, a comprehensive global strategy for action was published in 1980 — the World Conservation Strategy (WCS). It provided the impetus and inspiration for the Alberta Conservation Strategy project, begun in 1985, of which this document is a part. More details on the WCS and the Alberta project are provided in Appendix C.

Who Should Participate In Environmental Education?

> *If you are thinking a year ahead, sow a seed.*
> *If you are thinking ten years ahead, plant a tree.*
> *If you are thinking one hundred years ahead, educate the people* — Chinese poet, 500 B.C.

At its most basic, the World Conservation Strategy is an educational document. It explains why we need to change our view of the world, and it steers us in the appropriate direction, toward sustainable resource use. And it makes clear that fundamental change is required in society at large.

> *Ultimately the behavior of entire societies towards the biosphere must be transformed if the achievement of conservation objectives is to be assured. A new ethic, embracing plants and animals as well as people, is required for human societies to live in harmony with the natural world on which they depend for survival and well-being. The long-term task of environmental education is to foster or reinforce attitudes and behavior compatible with this new ethic* (World Conservation Strategy 1980).

How can we ensure that our society will adopt such an ethic? Any conservation ethic, like any public policy or political vision, is only effective if there is sufficient public support for it. The WCS states:

Ultimately, ecosystems and species are being destroyed because people do not see that it is in their interest not to destroy them. (World Conservation Strategy 1980).

Because environmental education happens when people acquire and share practical information, support each other's efforts, and promote conservation ethics, environmental education is everybody's business, whether or not we consider ourselves specialists in the education field. It is therefore necessary to understand how we can participate in the environmental education process — fostering or reinforcing attitudes and behavior that embrace a conservation ethic — both as givers and receivers of information. Heightened environmental awareness makes us better citizens and community members.

It is certain that many Albertans already believe in the value of environmental education. But, like other citizens who feel uncertain about their knowledge of scientific, ethical, economic and political matters, many of us find it difficult to practise what we believe in. Thus, we often turn to experts and community leaders for guidance, inspiration, and information, not because we lack commitment, but because we simply don't know what to do. In those circumstances, our leaders are placed in a position to be the direct catalysts for our action. It is they to whom a fair number of our day-to-day decisions are abdicated.

This, however, is changing. People want to take more responsibility for their lives and their environment as long as they are confident that their actions are reasonable and that they will make a difference.

Whether we are the leaders or the followers, all of us play an important role in promoting a strong conservation ethic.

Institutional or Formal Environmental Education

Environmental education has always had a nominal place in the Alberta curriculum for Grades 1 to 12. However, there have only been a few "windows" in the curriculum, partly because of environmental education's integrative nature. Environmental education has been most welcome at the elementary level, particularly in social studies and science. However, it has been the individual teachers, who, by their interpretation of the curriculum, have given students access to environmental education concepts.

The secondary curriculum has been much more restrictive. With the advent of province-wide examinations, opportunities for environmental education have been further reduced. Optional time, some of which has been used for environmental education, has been devoted to the review of core material. The advent of a new secondary curriculum shows promise for increased treatment of environmental topics at all levels within the senior curriculum. Within social studies programs, environmental education concepts, attitudes, and skills often are explored through the social inquiry model.

Currently environmental areas of study are identifiable in optional units as well as in required units in the K-12 science program. However, the proposed changes for secondary science in Alberta schools will put environmental topics of study into the prescribed course content areas with incorporation of the "Science, Technology, and Society" approach in the secondary science program. These changes address both articulation and integration and, as such, are most suited to the desired scope and sequence of environmental education.

Lately, post-secondary institutions have shown some signs of developing a co-ordinated approach to environmental education, with a foundation of continuing programs. However, there has been little follow up on the initial work in this area and it is doubtful that any will be initiated by the institutions or by Alberta Advanced Education. It is not surprising that there are problems for environmental education, given this context. Some of the problems affecting the development and management of environmental education in our society are summarized in Box 1.

Two resource areas have the greatest impact on whether environmental education is addressed in schools. The first is the availability of funding to buy necessary instructional materials and, equally important, sufficient funding for direct experiences in the environment. The second is the provision of teacher and student materials that are widely and readily available, current, and usable by the school audience.

The first concern, funding, is of paramount importance today. Even if changes make the curriculum more amenable to teaching about the environment, funds are needed to purchase the materials to go along with it. The field trip, school camp, and similar activities have always been cornerstones to good environmental education. With reduced or non-existent funding, the effectiveness of environmental education in schools is greatly reduced.

Why do we have these funding and materials constraints? These problems arise partly because of the following:

1) Many educational materials are written for the same part of the curriculum and thus compete with each other for use in the classroom.
2) The quality and education value of the material vary greatly.
3) Materials are available only to a selected portion of the population, because budgets from any one government department are not large enough to serve all teachers in all areas of the province equally.
4) With budget reductions, each and every program source faces budget cuts and, in some cases, the material or service is being reduced or eliminated.

The establishment of the Joint Committee on Environmental Education is an interesting development in the area of resource support. This is an interdepartmental committee, formed at the direction of the Minister of Environment, with invitations extended to all other Ministers who have environmental education programming within their department. Thirteen departments and agencies participate in the Joint Committee

Box 1. Some Problems That Hinder Environmental Education

- the need to find out if funding is adequate and, if not, to determine how it can be improved
- the difficulty of finding funding for environmental education in a declining economy
- no consensus on who should fund environmental education
- poor co-ordination of environmental education in a complex society
- inadequate development of and support for networks of those interested in environmental education
- poor co-ordination of environmental education activities, sometimes resulting in duplication of efforts and materials and inefficient allocation of funds
- historical tendency to view environmental education as separate from politics and the economy
- the time it takes curriculum and textbook development to react to a rapidly changing situation
- poor recognition of the role of training for teachers and other leaders in society
- difficulty of assessing the accuracy and reliability of information
- diffulty in deciding which are the important environmental education issues and focusing society's attention on these issues
- difficulty of determining who is responsible for environmental education
- difficulty of determining who can do the job most effectively
- difficulty of making environmental issues relevant to other parts of our day-to-day lives, so we realize the connections between our actions and the overall state of the environment.

on Environmental Education, whose goal is to co-ordinate efforts in environmental education so that the greatest amount is achieved despite a shrinking budget.

The Non-Formal or Community System

The non-formal or community education system differs from the formal educational system in that there is no curriculum or agenda common to all organizations. Each agency has its own objectives and mandate which are reflected in its educational programming. Within specific organizations such as parks, zoos, and museums, co-ordinating committees and boards may give strong direction to the organization, but co-ordination between agencies is informal at best and often non-existant.

In addition to the lack of co-ordination, there are other questions about the effectiveness of the informal system. Some of these are summarized in Box 2.

In Alberta, the community education system includes the following:

a) designated divisions or sections within some provincial government departments such as Recreation and Parks; Environment; Agriculture; Forestry, Lands and Wildlife; and Energy;

b) museums, parks, zoos, and natural areas;

c) television and radio programs;

d) printed media such as newspapers, periodicals, and special publications;

e) special interest groups such as Boy Scouts, Girl Guides, 4-H, and Junior Forest Wardens;

f) community special events such as Environment Week and Wildlife Week.

Co-ordination within the non-formal education sector is in its infancy, and this clearly constrains the effectiveness of the non-formal system. Agencies attempting to provide some co-ordination and direction were discussed near the end of Chapter One.

But an obvious agent of co-ordination is the "band wagon" phenomenon, where an issue of public interest arises and creates a demand for information and action. Most issues begin with an event that attracts the media's attention. The issue is exposed when the media covers the story. The public has the opportunity to learn about the issue and, if the public is sufficiently interested, some action may follow. If not, the issue dies. For example, conflict between the logging industry and the natives in the Queen Charlotte Islands was cause for the media to cover the South Moresby story. South Moresby Island, a beautiful and biologically diverse area with important cultural features, was proposed to become a national park. It was also valued for its commercial potential for the forest products industry. In covering the story, the media focused public attention on the complex environmental and political problems in the area. Other examples such as an oil spill, whales trapped by ice, or an accident involving toxic waste also trigger public and media interest in environmental questions. Until the publication of the World Conservation Strategy in 1980, a focus for common response by diverse agencies concerned about the environment was unclear.

Box 2. Questions for the Non-Formal System

- Is funding adequate?
- Can we measure the impact of environmental education on the out-of-school population?
- To what degree are our citizens environmentally literate?
- To what extent is industry contributing to environmental education?
- Western Canada has become a world center of excellence in heritage. Can it stay that way when funds for the interpretive programs are being cut everywhere?
- How can the media continue to improve their presence in the field?

This may no longer be the case with the declaration of the strategy's principles for a sustainable world.

But often news stories have negative or even disastrous overtones. Getting attention for the success stories remains a problem in the coverage of environmental stories, as it is in other areas. The subject matter is controlled by media editors and producers and may be primarily influenced by economic pressures or emotional factors such as fear and disgust. An issue may be brought to the public's attention if it is likely to sell newspapers or attract television viewers. Programs that depend on a specific sponsor may suddenly be jeopardized if the sponsor finds itself incapable of providing support. Innovative programs may have a more difficult time finding funds in times of economic restraint.

Chapter Three

Environmental Education and the Alberta Conservation Strategy

The progress we have made in sustaining use of resources in the developed world has been the result of learning — learning what works and what doesn't, and learning to do better in as many human endeavors as possible.

Learning is an individual achievement, although it may take place in the company of others. It confers power on the individual, who may then act on the basis of this knowledge, alone or with others. The attention paid to environmental education in the Alberta Conservation Strategy (ACS) will directly affect its capacity to harness the power of the minds of Albertans of all ages.

The *Prospectus for an Alberta Conservation Strategy* concludes by saying "It is essential that the process of developing an ACS be as open and participatory as possible." The purpose of this criterion is not to satisfy a legal or political requirement, but to make it possible to learn as much as feasible, from as many people as possible, with backgrounds as diverse as they can be. We hope the purpose is also to provide an opportunity for all participants to learn from each other.

The question, then, is what role does education about the environment play in a conservation strategy for Alberta? Further, what role does the Alberta Conservation Strategy have in helping Albertans learn about conservation? The Environmental Education Advisory Committee to the Environment Council of Alberta proposes five environmental education outcomes that should result from the Alberta Conservation Strategy process:

— A clear idea of whether environmental education in Alberta is effective

— A clear identification of the role education will play in pursuing overall objectives of the strategy

— A compendium of educational approaches to be used in achieving specific goals of the strategy

— A set of unifying ideals and important educational resources for conservation and sustainable use in Alberta, created through the process of preparing an Alberta Conservation Strategy

— Excellent opportunities to learn about sustainable use and conservation in Alberta through the process of preparing and maintaining an Alberta Conservation Strategy, and the creation of an outstanding learning environment through the public hearing process.

The first outcome will determine the specifics of the other four, more forward-looking outcomes. The second and third outcomes will enable environmental educators of all kinds to see how they can contribute to the successful implementation of the strategy, and the fourth and fifth outcomes will help educators in those efforts.

Achieving Our Goals

We know there are some unresolved issues that hinder development of a comprehensive environmental education system (see Box 3). This list is not exhaustive, but it indicates the complexity of the issues in Alberta. It also seems likely that many of the issues and concerns of Albertans are shared with other provinces and countries. It is becoming apparent that the strategies Alberta prepares to handle these issues should be interdisciplinary. A Conservation Strategy (as opposed to an agricultural, industrial, or political strategy, for example) can provide this integration because it encompasses many sectors and disciplines. If the five outcomes previously described are actively sought, some of these problems will be mitigated.

But in order for a Conservation Strategy to be effectively interdisciplinary, the participants must understand how the various aspects of an issue influence each other, and what effect altering one or two components has on the whole. This understanding can and should come from an effective environmental education program. We hope that the ACS process will help improve environmental education in Alberta; in turn, effective environmental education will help the Conservation Strategy. The following section discusses some tools to facilitate this relationship.

Box 3. Issues in Formal Environmental Education

- Back to Basics: does it leave room for serious environmental education?
- What are the essential differences and similarities between environmental education and outdoor education?
- How do we train educators to deal with and effectively teach an "environmentally infused" curriculum, whereby environmental issues are brought into other subject areas such as social studies, science, mathematics, political science, economics, and art?
- How much experience of environmental education do children actually get?
- What is the role of environmental education in the school system?
- What is the role of environmental education in the secondary and post-secondary education areas?
- How important is it for university graduates to be environmentally literate?
- Can the education system change rapidly enough to cope with a rapidly changing society?
- Are the teachers dedicated to environmental education rewarded adequately?
- Can environmental education be taught in the classroom without turning kids off?

Some Tools for Effective Environmental Education

An effective environmental education program must reach all of society, and must have short-term and long-term objectives. Formal studies within school systems are a good way to develop environmentally aware citizens over the long term. These studies should be compulsory, and, to be effective, they must incorporate environmental concerns into all courses. As the population develops an understanding of and feeling for environmental issues, it can start making decisions that enhance our environment (somewhat analogous to the understanding that has led to major changes in the way smoking is viewed).

Over the short term, different approaches are needed to reach the portion of the population not in the formal education system, and to respond to immediate and pressing issues. Some of these are summarized in Box 4, and we hope that more ideas will result from the Alberta Conservation Strategy process.

Through short-term and long-term environmental education programs, citizens can develop considerable political power and be very persuasive. But this is not enough. No conservation strategy will be effective if there is not the political will to embrace it. The elected representatives themselves must be "environmentally aware." Ultimately, all Albertans must live their own conservation strategy. It is not enough to agree that smoking is bad, while continuing to smoke a pack a day.

Box 4. Some Approaches for Short-Term Non-Formal Environmental Education

- develop outdoor education programs (e.g. interpretive programs, "how to behave in the outdoors" programs)
- discuss waste disposal and management alternatives (community recycling programs, disposal of chemicals and their containers)
- conduct cost analyses and comparisons (cost of doing something versus cost of NOT doing something)
- have people play with resource management games or computer simulations to see what effects different decisions can have
- present in-service seminars for businesses, institutions, government departments and organizations
- write articles for newspapers, journals, magazines
- target and convert decision makers
- undertake advertising campaigns
- conduct public information meetings
- promote a co-operative (as opposed to confrontational) approach to problem-solving

Beyond Tactics: Issues for Individuals

One outcome we would like to see from the ACS experience is a whole lot of good, intensive learning about conservation through participation in the process. Hands-on participation inevitably focuses on on-the-ground issues rather than questions of tactics or process. Where does an interested individual begin?

Political boundaries rarely completely enclose the boundaries of ecosystems. Because of this, political decisions regarding environmental concerns usually have impacts that are felt beyond jurisdictional borders. Consequently, many environmental issues of national and regional concern are also of provincial and local concern. And no part of Alberta is without at least one major environmental issue.

Box 5 gives an overview of some issues educators may wish to use as a foundation for participation.

Recommendations for the ACS

Action and commitment are required at several levels in order for a Conservation Strategy to succeed. Individual action is the foundation — individuals as consumers, voters, and taxpayers can effect a great deal of change in their own lives as well as in legislatures and boardrooms. Thus individual, corporate, and government responsibility are all important, and the following recommendations recognize the need for this broad base of support.

— A long-range and comprehensive environmental education strategy should be formulated for Alberta. The plan should establish immediate and intermediate as well as long-range objectives for different economic and geographic sectors of the province.

— Environmental education for everyone should be encouraged. This means expanding the programs to address the environmental education needs of learners of all ages, all walks of life, all sectors of the community.

— Opinion leaders should be targeted by environmental educators. Their influence on their peers and constituents is immense. Their leadership will be greatly enhanced by a conservation ethic consistent with the objectives of the World Conservation Strategy and the Alberta Conservation Strategy.

— Environmental education should be part of all educational curricula. Schools need to integrate the principles of sound eco-development throughout all of their programs, especially in the sciences and

Box 5. Environmental Issues for Discussion

- loss of prime agricultural land to urban expansion and soil degradation
- salinization of soil due to irrigation or cultivation practices
- contamination of surface and ground water from mining, drilling, surface operations, chemicals, fertilizers
- management and disposal of wastes (industrial, domestic, hazardous substances)
- recycling and non-renewable resource extraction and development
- preservation and conservation of natural and historical resources
- habitat and wildlife management
- ethical and economic considerations in the fur industry
- forest management
- water diversion and irrigation
- land use and protection of parks.
- air pollution and atmospheric change

Many concerns are associated with each issue. Some of these include:

- What are the effects on local populations?
- What are the effects on traditional occupations and lifestyles?
- What are the land use conflicts?
- What are the use/preservation conflicts regarding the natural resources?
- What are the public health concerns (for example, air quality, chemical build-up in foods, stress)?
- How can we best use the land and renewable resources to sustain yields?
- What are the costs associated with the choices (limited government resources, effects on businesses, short-term versus long-term gains and losses)?
- Can all citizens involved in labor, industry, and commerce be expected to promote environmentally sound economic development rather than the "quick gains at the expense of long-term pains" approach?
- How can the understanding of developers be brought to a level that they begin to see Alberta as being held in trust for future Albertans, rather than an inheritance?
- Is it appropriate, on occasion, to expect environmental protection at the expense of economic growth?
- What about the general public: are they not too often environmentally irresponsible or passive in their action? What are the reasons for this environmental irresponsibility or passivity? How can it be changed?

social studies, and not treat environmental education as a separate subject area.

— Non-formal education, which includes learning that occurs in parks, zoos, science centers, aquariums, and other places in the community, should also embrace the objectives of the Alberta Conservation Strategy. Study tours, nature expeditions, nature art programs, and activities sponsored by outdoor and naturalist groups are also important means to learning the new environmental ethic.

— Environmentally sensitive eco-tourism and other non-consumptive forms of outdoor recreation should be encouraged as a form of environmental education. For example, in addition to (or better yet, instead of) simply lying on the beach near the hotel during your holidays, visit a national or provincial park, a cultural heritage site, or go on a wilderness expedition. Watch birds, whales, or salmon, and enjoy wild flowers and plants.

— Literature and audio-visual materials used for environmental education should be relevant, stimulating, effective, and easily accessible to the community. Throughout the world, many of the key environmental books, such as the WCED report *Our Common Future*, are now available in French, English, and Spanish. Nevertheless, it is expected that as many as 900 million people will be unable to read and write by the turn of the century, even though illiteracy is expected to decrease as a percentage of world population. Education must be improved in quality and made relevant to local conditions. Environmental principles can be integrated into materials used by people who are learning how to read and write in any language.

— Everyone should be encouraged to join at least one environmental interest group that promotes the conservation ethic. This could be a naturalist society, bird-watching club, outdoor recreation organization, parks and wilderness association, or public interest group concerned about environmental quality.

— Wilderness restoration and wildlife habitat rehabilitation projects should be initiated and supported. Much learning occurs during the course of these projects. Although we will never fully restore nature to what it was, we can help reverse some of the damage that has been done.

— Sustainable resource use committees should be established at the local level to address local issues, in a manner similar to the Round Tables recommended by the National Task Force on Environment and Economy addressing larger issues.

— Conservation projects should be initiated at the local level, with opportunities for broad citizen participation. Learning by doing should be emphasized. For example, municipalities could establish a composting project for biodegradable wastes such as grass clippings, landscape debris, selected kitchen wastes, and so on, or begin a recycling program to collect paper, glass, and metal.

— People should acquire knowledge and skills that will enable them to become self-sufficient. In many countries, including Canada, people are learning principles and techniques of resource management, agroforestry, multiple cropping, and eco-tourism; many are also trying to ensure that their businesses and economic development projects are environmentally sensitive. In Alberta, sound resource management and environmentally sensitive tourism development are important in achieving the goals of the ACS.

— Individuals should learn the processes, and acquire the knowledge and skills, that enable them to act on issues of concern at a personal, group, or community level.

— Consumers should support biodegradable products and containers through informed purchasing and product use. This includes choosing environmentally friendly products, selecting products with the least packaging, avoiding products made from non-renewable resources when renewable-based alternatives are available, and handling toxic wastes with caution and disposing of them using recommended methods.

- More can be done to encourage a systematic approach to environmental education in Alberta. There is room for specialist training, which can be valuable for professional and technical groups with specific interest in environmental education. Some specific recommendations include the following:
  - Institutions of higher learning should expand environmental programs. This could include the incorporation of courses in environmental ethics, environmental law, and environmental economics into the programs of studies for engineers, architects, planners, economists, lawyers, business managers, and scientists as well as those in liberal arts.
  - Specialized training programs offered to part-time adult students should be encouraged. This can include professional development seminars and workshops as well as general interest courses. For example, seminars and workshops on the why, what, and how of environmental impact assessments, the management of hazardous wastes, the management of parks and other protected areas, and contemporary issues in resource management are popular topics today. Many of these courses can be administered through extension and adult education units.
- Without overly romanticizing it, studies of native Indian cultures should be encouraged, and incorporated into Alberta's school curriculum as a method of teaching valuable lessons about environmental ethics.
- Programs should be designed to reflect the multidisciplinary nature of environmental studies. This is an important step in overcoming the barriers to integration that currently exist when specialist training is too narrow. The physical, biological, and social sciences should combine efforts with the arts and humanities, as well as the professional programs, such as law and medicine, in order to emphasize the holistic nature of the subject matter.
- Additional support and incentives should be provided to students and educators who wish to work in environmental fields. This can take the form of scholarships, bursaries, research grants, study leaves, and professional development funds.

Finally, knowledge does not always have to be complex and sophisticated to be useful. We derive greater value from our knowledge when we can apply that knowledge to our everyday life. It is in this spirit that the Environment Council of Alberta is preparing checklists of practical and helpful tips called "What I Can Do for the Environment." The collection includes actions on topics such as air pollution, energy, gardening, indoor air pollution, environmentally friendly products, recycling, water conservation, and wildlife. The list is open-ended in terms of topics and actions. These are short, easy-to-read lists of actions that can easily be implemented in our day-to-day lives. Some examples are given in Box 6.

Box 6. Actions from the What I Can Do For The Environment Database

- Energy resources are gone forever and some pollution results when we heat our homes. Keep your heating system in good condition — air filters changed, radiators and heating vents cleaned — to gain the maximum amount of heat from the fuel you use. A dirty filter reduces the efficiency of your furnace by five to eight percent.
- Pesticides are toxic to harmless life forms as well as unwanted insects and small mammals. To minimize their risk to the environment, read labels carefully and use pesticides that are intended for the purpose and that are least toxic to birds and other wildlife.
- Conserving water means conserving energy and less water purification chemicals added to the environment. Water lawns and gardens in the evening or early morning when evaporation is slower, and don't water when it's windy.
- Compressed paper, such as that used in egg cartons and some meat trays is made from recycled newspaper and may be recycled again. Encourage its use, especially for supermarket meat trays, instead of plastics.
- Some kinds of styrofoam are manufactured using chlorofluorocarbons, chemicals that are destroying the earth's protective ozone layer. Avoid styrofoam products and packaging unless you are certain that CFCs were not used to make it. Better still, because it's made from a non-renewable resource, avoid styrofoam altogether whenever possible.

Conclusion

Environmental education is more than just learning about nature and ecology. It is also about learning and practicing the conservation ethic needed to ensure that nature, as we know it, survives. Most important, it is learning about ourselves, about how we live and what we value.

Environmental education, to be effective, should create suitable and timely conditions for learning to occur. Learning means acquiring knowledge and understanding that enables the learner to think critically about problems, to form opinions and shape beliefs, to question conventional truths if reasoning justifies the challenge, and to make choices that contribute to the quality of the environment and, therefore, to the quality of life. Inappropriate action or even inaction resulting from having learned nothing is unacceptable. As the British philosopher and political economist John Stuart Mill wrote:

> *A person may cause evil to others not only by his actions but by his inaction, and in either case he is justly accountable to them for their injury.*

We hope this discussion paper has stimulated interest and provoked thoughtful debate. Most of all, we hope that it can inspire Albertans to help shape that conservation ethic, to help translate the Alberta Conservation Strategy into practical reality, and to encourage citizens of this province to make a more vigorous commitment to action.

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Appendix A

Themes and Trends of Environmental Education in Alberta

Environmental studies, in one form or another, have been part of education and learning — and life — for a very long time. Quite clearly, for early aboriginal peoples living in the geographical area known today as Alberta, learning about the environment was central to their educational approaches because it was central to their staying alive.

With European settlement, and the displacement of aboriginal subsistence cultures, environmental education of Albertans continued, but was shaped and directed in response to a new cultural ethos — one which believed the environment should be developed and improved according to anthropocentric models, as opposed to ecological realities.

In time, ecological realities began to reassert influence over education. Readily identifiable educational programs about the environment can be traced back a quarter century in this province. In fact, the term "environmental education" was not formally defined until the late 1960s.

During the '70s, the growth of environmental education in Alberta paralleled the awakening of the general public to concerns about human impact on the physical environment and attendant quality-of-life considerations. However, for the most part, these programs tended to be "marginalized," that is, added on to existing curricular requirements, in the formal educational system. This setting is where the greatest growth occurred, with most of the activity during the middle years of public school.

In Alberta, formal environmental education developed out of three basic areas. First, in the elementary school, beginning in the late 1960s and early 1970s, camps were established. These grew in number and sophistication. This movement led to year-round activities in the classroom and school yard where a variety of environmental topics were integrated into all subject areas. Second, in the junior high schools, the optional programs allowed the development of such programs as hunter training, survival and outdoor skills, and subsequent studies of local environmental concerns. Third, in the secondary schools, the Life Science (Grade 7-9)/Biology 10-20 program allowed for study of ecological issues such as acid rain, water and air pollution, and endangered species, among others.

Environmental education programming at the post-secondary level reacted to this growth in activity by focusing more on skill development and providing environmental information rather than on the process of educating about the environment.

During this same period, other agencies arose whose mandates were concerned with our natural environment, and delivery of interpretive programs by these agencies to the public is now much in demand. Similarly print and broadcast media are more interested than ever in developing and delivering environmental information in response to increasing public interest.

Although initially intense in its activity and experimental in nature, this newest wave of environmental education has broadened both its base of support and public involvement to the point where Alberta is recognized as a leader both nationally and internationally in this field. And as the public interest and demand for environmental education grows, there is a definite trend away from marginalized programs toward the integration of learning about the environment back into the very heart of education. It is as if the wisdom of our ancient predecessors about learning and life is once again becoming the major focus for raising Alberta.

Appendix B

Environmental Education Contacts

ACCESS Network
16930 - 114 Avenue
Edmonton, Alberta
T5M 3S2
Phone (Edmonton) 451-7272
(Calgary) 256-1100
(Environment videos: The Harmony Puzzle (elementary) and Water in Alberta (jr-sr high))

Conservation Education
Alberta Fish and Wildlife
Alberta Forestry Lands and Wildlife
9920 - 108 Street
Edmonton, Alberta
T5K 2C9
Phone 427-6757
(Wildlife Issues, Project WILD)

Information Centre
Alberta Forest Service
Alberta Forestry Lands and Wildlife
9915 - 108 Street
Edmonton, Alberta
T5K 2C9
Phone 427-3590
(Forestry Issues)

Education Branch
Alberta Environment
9820 - 106 Street
Edmonton, Alberta
T5K 2J6
Phone 427-6310
(Water, Water Quality, Air Quality, Acid Rain, Pesticides, Waste, Recycling, Water Literacy Program)

SEEDS Foundation
440, 10169 - 104 Street
Edmonton, Alberta
T5J 1A5
Phone 424-0971
(Energy Literacy Series)

Agriculture Education Branch
Alberta Agriculture
200, J.G. O'Donoghue Building
Edmonton, Alberta
T6H 5J6
Phone 427-2402
(Farm Water Management, Soil Erosion Pesticides)

Friends of Environmental Education Society of Alberta
641-21, 10405 Jasper Avenue
Edmonton, Alberta
T5J 3S2
Phone 426-4191
(Environmental education news, resource contact information)

Environment Canada
Twin Atria 2, 2nd Floor
4999 - 98 Avenue
Edmonton, Alberta
T6B 2X2
Phone 468-8065
(Acid Rain, Ozone)

School Programs
Energy Conservation Branch
Alberta Energy
2nd Floor
10010 - 106 Street
Edmonton, Alberta
T5J 3L8
Phone 427-5200
(Energy Conservation Education Kits)

Information
Energy Resources Conservation Board
640 - 5th Avenue SW
Calgary, Alberta
T2P 3G4
Phone 424-0971
(Energy Projects and Issues, Energeum)

Canadian Petroleum Association
3800 - 150 Sixth Avenue SW
Calgary, Alberta
T2P 3Y7
Phone 269-6721
(Oil and Gas Issues)

Environmental Education Coordinator
Alberta Recreation and Parks
16th Floor,
10405 Jasper Avenue
Edmonton, Alberta
T5J 3N4
Phone 427-9429
(Parks, Natural, and Protected Areas)

Alberta Special Waste Management Corporation
900, 10909 Jasper Avenue
Edmonton, Alberta
T5J 3L9
Phone 427-5029
(Special and Hazardous Wastes)

Environmental Education Advisory Committee
Environment Council of Alberta
8th Floor Weber Centre
5555 Calgary Trail Southbound NW
Edmonton, Alberta
T6H 5P9
Phone 427-5792
(Environmental Education Issues and Policy)

Protected Areas Management
c/o Albert A. Einsiedel, Jr.
Faculty of Extension
University of Alberta
Edmonton, Alberta
T6G 2G4
Phone 492-3026

Appendix C

World Conservation Strategy

What is the World Conservation Strategy and who formulated it? The WCS was prepared by the International Union for the Conservation of Nature and Natural Resources (IUCN), the largest non-governmental organization dedicated to environmental conservation in the world. Many Canadian organizations are active members of the IUCN.

With support from the United Nations Environment Program (UNEP) and the World Wildlife Fund (WWF), IUCN published the WCS in 1980 following five years of intensive discussion among hundreds of scientists, government and non-government representatives, development agencies, financial institutions, and others around the world. (Two Canadians, David Munro and Robert Prescott-Allen, were important figures in the development of the document.)

How relevant is the WCS to Albertans? The original version of the WCS is a generic outline for developing national, regional, or local conservation strategies. It recognized that different actions are required in different parts of the world. National, provincial, and local strategies will differ depending on location, economy, culture, and political and ecological systems. For that reason, it is important for Albertans to consider how best to adapt the WCS to our own provincial context.

Conservation and Development

A major premise of the WCS is that conservation and development are compatible and in fact are mutually dependent in the long term. Conservation, like development, is for people. Conservation makes future development possible by holding certain resources in reserve; development often creates conditions which make conservation practical.

Three objectives were offered in the WCS:

— Maintain essential ecological processes and life-support systems (such as soil regeneration and protection, the recycling of nutrients, and the cleansing of waters), on which human survival and development depend.

— Preserve genetic diversity (the range of genetic material found in the world's organisms) on which depends the research necessary for the protection and improvement of cultivated plants and domestic animals.

— Ensure the sustainable use of species and ecosystems (notably fish and wildlife, forests, and grazing lands), which support millions of rural communities as well as major industries.

Each one of these three goals is like a leg of a three-legged stool. Without one of them, the stool is unable to stand. Thus, these three goals in combination comprise the core of the global strategy. The measure of how successful application of the strategy is depends on how successfully all three goals are achieved.

These goals have been elaborated on since they were first written. For example, one of the landmark international events that has reinforced the WCS and positively influenced its further interpretation and implementation was the work of the United Nations World Commission on Environment and Development, also known as the Brundtland Commission.

World Commission On Environment and Development

In the fall of 1983, the United Nations General Assembly asked Norway's Prime Minister, Mrs. Gro Harlem Brundtland, the only politician in the world to move from the post of Environment Minister to Prime Minister, to put together an independent Commission in response to an urgent call by the UN General Assembly to come up with a "global agenda for change."

The WCED mandate spelled out three objectives:

- to re-examine the critical environment and development issues and to formulate realistic proposals for dealing with them
- to propose new forms of international co-operation on these issues that will influence policies and events in the direction of needed changes
- to raise the levels of understanding and commitment to action of individuals, voluntary organizations, businesses, institutes, and governments.

The group — ministers, scientists, diplomats, and law-makers — studied and debated and held public hearings on five continents over almost three years. Many Canadians participated in this process. Two Canadians were members of the Commission itself. In April of 1987, the World Commission on Environment and Development published *Our Common Future*. It was submitted to the United Nations General Assembly for consideration during its 42nd Session in the autumn of 1987.

The bottom line of these initiatives is this: We must collectively stop using up the earth's ecological capital and begin to live on the interest we can get from the sustainable husbandry of its resources. In order to accomplish this transformation, governments throughout the world need to do at least two things.

First, they need to make the concept of sustainable development central to all planning and activities. Second, the community of nations needs to evolve a new, more equitable international economic structure that begins to narrow the gap between developed and developing countries.

This gap in power and resources "is the planet's main environmental problem; it is also its main development problem." The need to integrate economic and ecological considerations into developmental planning will require nothing less than a renaissance in economic decision-making.

Sustainable Development

Both the WCS and the WCED hold that the key to solving many of our environmental problems is development that is sustainable, both environmentally and economically. But what is sustainable development and what are the practical, commonsense ways to achieve it?

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. In the Alberta Conservation Strategy, sustainable development is the

> *management of our resources in such a way that we can fulfill our economic, cultural, and aesthetic needs while maintaining essential ecological processes, genetic diversity, and naturally-occurring life-support systems within Alberta.*

What are the prerequisites for sustainable development? Many of the problems of resource depletion and environmental stress arise from disparities in economic and political power. In order to eliminate these disparities, the Brundtland Commission offers the following objectives:

- changing the quality of growth
- meeting essential needs for jobs, food, energy, water, and sanitation
- ensuring a sustainable level of population
- conserving and enhancing the resource base
- reorienting technology and managing risk

- merging environment and economics in decision-making.

Support for Conservation Strategies in Canada

The Government of Canada, through the Minister of Environment and with provincial and territorial support, endorsed the WCS in 1981. Environment Canada conducted a federal review that subsequently produced 22 recommendations for further action on conservation strategies. The department surveyed federal policies and priorities and circulated its report to 17 federal departments and agencies as early as 1982.

A number of events have occurred to bring attention to Canadian Conservation Strategies. In 1985, the Canadian Environmental Advisory Council met with its provincial and territorial affiliates in Quebec City and discussed the notion of regional strategies in some detail. The "International Conference on Conservation and Development: Implementing the WCS" was held in Ottawa in 1986. A document entitled *World Conservation Strategy, Canada: A Report on Achievements in Conservation* was prepared by Environment Canada in collaboration with provincial and territorial departments to outline the progress being made to date in Canada. The National Task Force on Environment and Economy was established in 1986 by the Canadian Council of Resource and Environment Ministers

> *to initiate dialogue on environment-economy integration among Canada's environment ministers, senior executive officers from Canadian industry, and representatives from environmental organizations and the academic community.*

In September, 1987, the National Task Force on Environment and Economy submitted its report to the Canadian Council of Resource and Environment Ministers; Alberta's environment minister was one of the signatories to the report.

In general, the Task Force made a number of specific recommendations, such as calling for changes in pricing systems and economic incentives, improving the partnership between government and non-governmental organizations, establishing forums or multisectoral Round Tables on Environment and Economy in each province and territory, publishing a compendium of Canadian experiences in developing conservation strategies, and mobilizing public support by enhancing public awareness of environmental issues and solutions. This can be achieved through effective and innovative environmental education and communication strategies aimed at Canadians of all ages, but especially those in the younger age groups.

> *As a Task Force we also identified a need for education at all levels of society. The importance of educating our children to the new economic and environmental realities cannot be overstated. We believe that our children should have a better understanding of the environment so they can treat it with respect when they become decision makers in their own right. School curricula must be changed to enhance understanding of how the environment and the economy affect each other. Young Canadians will then learn how their future well-being depends upon that interaction. We recognize that curriculum changes cannot be achieved overnight in ten provinces and two territories. Nevertheless, we urge that change begin now if our children are to emerge from school, a decade hence, better prepared to participate in and influence integrated decision making.*

Alberta Conservation Strategy

Work on the ACS began in 1984 when the Public Advisory Committees to the Environment Council of Alberta took on the task. The ACS has six objectives, the first three from the World Strategy and the last three designed to meet the specific needs of Albertans:

- To maintain essential ecological processes and life support systems
- To preserve biological diversity
- To achieve sustainable use of species and ecosystems

— To provide for the recreational, spiritual, aesthetic, and other non-material needs of Albertans

— To maintain and improve the quality of life in the urban environment

— To use and manage our non-renewable resources in the interests of developing a long-term sustainable economy for Albertans.

Essential to the achievement of these six objectives is a conservation ethic that embraces the optimistic belief that people can and should take responsibility for the well-being of the planet. Albertans should acquire the necessary knowledge, attitudes, and skills needed to implement practical solutions that are consistent with the objectives of the ACS. This requires, among other things, a firm commitment to increasing the level of environmental literacy through environmental education.

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